

PROJECT DESCRIPTION

GENERAL

THIS PROJECT INVOLVES THE RECONSTRUCTION OF THE EXISTING TRAFFIC CONTROL SIGNAL AT THE INTERSECTION OF US 220 (MCMULLEN HIGHWAY) AND MD 636 (WARRIOR DRIVE) IN ALLEGANY COUNTY, MARYLAND. US 220 IS ASSUMED TO RUN IN A NORTH-SOUTH DIRECTION.

INTERSECTION OPERATION

THE INTERSECTION WILL OPERATE IN A NEMA FIVE PHASE, FULL-TRAFFIC-ACTUATED MODE WITH THE US 220 APPROACHES OPERATING CONCURRENTLY AND THE MD 636 APPROACH OPERATING INDEPENDENTLY. THE DRIVEWAY APPROACH INDICATION WILL OPERATE IN AN ALTERNATING FLASHING MODE AT ALL TIMES.

EXCLUSIVE/PERMISSIVE LEFT-TURN PHASING IS PROVIDED FOR NORTHBOUND US 220 WITH AN EASTBOUND MD 636 RIGHT-TURN OVERLAP PHASE.

ALTERNATE PEDESTRIAN PHASES ARE PROVIDED ACROSS BOTH THE NORTH AND SOUTH LEGS OF US 220. ACCESSIBLE PEDESTRIAN SIGNALS (APS) WILL BE PROVIDED FOR BOTH CROSSINGS. ALL PEDESTRIAN SIGNAL HEADS WILL BE COUNTDOWN TYPE.

APS MESSAGE:

WAIT: "WAIT TO CROSS MCMULLEN HIGHWAY AT WARRIOR DRIVE"  
WALK: RAPID TICK  
WALK: "WALK SIGN ON TO CROSS MCMULLEN HIGHWAY"

CONTROLLER REQUIREMENTS

FULL-TRAFFIC-ACTUATED, EIGHT-PHASE CONTROLLER WITH ONE (1) FOUR-CHANNEL TIME-DELAY OUTPUT LOOP DETECTOR AMPLIFIER, ONE (1) TWO-WIRE CENTRAL CONTROL UNIT, INTERSECTION MONITOR WITH BATTERY BACK-UP FOR PHONE DROP, VIDEO DETECTION INTERFACE (1-4 CAMERAS), AND ASSOCIATED HARNESSES HOUSED IN A NEMA SIZE "6" BASE MOUNTED CABINET.

PHONE DROP

UPON COMPLETION OF THIS PROJECT, THE CONTRACTOR SHALL NOTIFY MR. ROBERT SNYDER OF SHA AT (410) 787-7635 TO ARRANGE FOR THE PHONE LINE INSTALLATION. THE CONTRACTOR IS TO PROVIDE MR. SNYDER THE NEAREST STREET ADDRESS, ZIP CODE, AND PHONE NUMBER.

WIRING DIAGRAM

A,B,C, } 7-CONDUCTOR ELECTRICAL  
D,E,F, } CABLE (NO. 14 A.W.G.)

G,H,J,K, } 5-CONDUCTOR ELECTRICAL  
L,M,N,P, } CABLE (NO. 14 A.W.G.)

Q,R,S,T, } 2-CONDUCTOR ELECTRICAL  
CABLE (NO. 14 A.W.G.)

U,V,W, } 1-CONDUCTOR ELECTRICAL  
CABLE (NO. 4 A.W.G.)

X,Y, } VIDEO DETECTION LEAD-IN  
CABLE

Z,AA, } MICROLOOP LEAD-IN CABLE

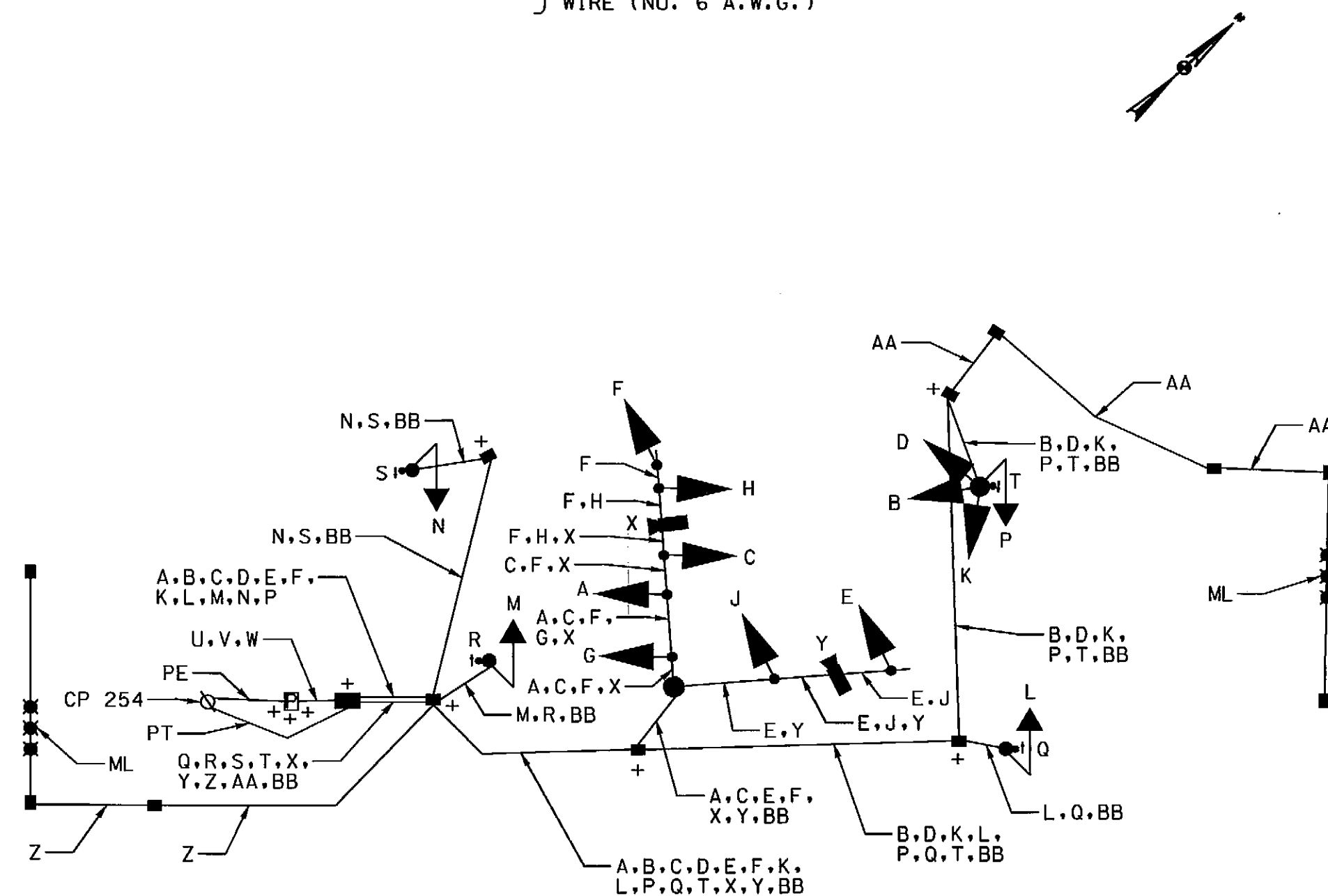
BB, } STRANDED BARE COPPER GROUND  
WIRE (NO. 6 A.W.G.)

ML - MICROLOOP PROBE

PE - PROPOSED UNDERGROUND  
ELECTRICAL SERVICE

PT - PROPOSED UNDERGROUND  
TELEPHONE SERVICE

+ - 3/4 IN. X 10 FT. GROUND  
ROD



EQUIPMENT LIST "A"

A. EQUIPMENT TO BE SUPPLIED BY SHA:

| ITEM NO. | QUANTITY | UNIT | DESCRIPTION  |
|----------|----------|------|--|
| 900000   | 1        | EA   | VIDEO INTERFACE EQUIPMENT: 1-4 CAMERAS                           |
| 963010   | 1        | EA   | FOUR CHANNEL TIME DELAY OUTPUT LOOP DETECTOR AMPLIFIER           |
| 971017   | 1        | EA   | EIGHT PHASE (FULLY ACTUATED) CONTROLLER AND CABINET - BASE MOUNT |
| 973023   | 12       | SF   | SHEET ALUMINUM SIGNS   |
|          |          |      | - 4 EACH R10-3(1) (9"x15") - POLE MOUNTED                        |
|          |          |      | - 1 EACH D-3(2) (VARIABLEx16") DUAL FACED - MAST ARM MOUNTED     |
|          |          |      | - 1 EACH D-3(2) (VARIABLEx16") - MAST ARM MOUNTED                |

PROJECT CONTACTS

THE CONTACT PERSONS FOR SHA ARE AS FOLLOWS:

MR. GEORGE SMALL  
ASSISTANT DISTRICT ENGINEER - TRAFFIC  
PHONE: (301) 729-8444

MR. ANTHONY CRAWFORD  
ASSISTANT DISTRICT ENGINEER - MAINTENANCE  
PHONE: (301) 729-8457

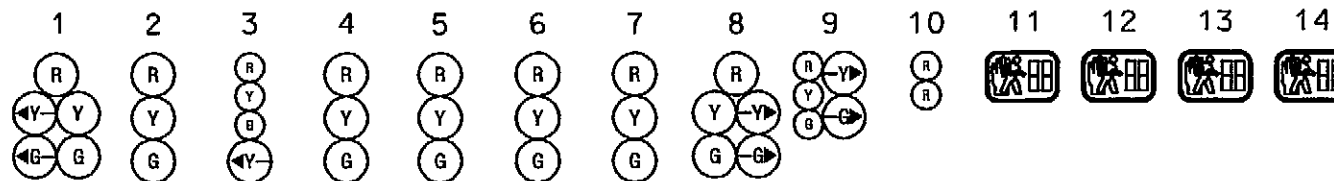
MR. ED RODENHIZER  
SUPERVISOR - SIGNAL SHOP  
PHONE: (410) 787-7650

MR. DAVE FELKER  
ASSISTANT DISTRICT ENGINEER - UTILITY  
PHONE: (301) 729-8439

MR. RICHARD L. DAFF  
CHIEF, TRAFFIC OPERATIONS DIVISION  
PHONE: (410) 787-7630

MR. MARTY DUNNINGTON  
ALLEGHENY POWER  
PHONE: (301) 759-5709

PHASE CHART



|                    | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 9    | 10   | 11    | 12    | 13    | 14    |
|--------------------|------|------|------|------|------|------|------|------|------|------|-------|-------|-------|-------|
| PHASE 1 + 6        | G    | G    | G    | R    | R    | R    | R    | R    | R    | FL/R | DW    | DW    | DW    | DW    |
| 1 + 6 CHANGE       | G    | G    | G    | R    | R    | R    | R    | R    | R    | FL/R | DW    | DW    | DW    | DW    |
| PHASE 2 + 6        | G    | G    | G    | G    | G    | R    | R    | R    | R    | FL/R | DW    | DW    | DW    | DW    |
| 2 + 6 CHANGE       | Y    | Y    | Y    | Y    | Y    | R    | R    | R    | R    | FL/R | DW    | DW    | DW    | DW    |
| PHASE 4            | R    | R    | R    | R    | R    | G    | G    | G    | G    | FL/R | DW    | DW    | DW    | DW    |
| 4 CHANGE           | R    | R    | R    | R    | R    | Y    | Y    | Y    | Y    | FL/R | DW    | DW    | DW    | DW    |
| OVERLAP 'A'        | G    | G    | G    | R    | R    | R    | R    | R    | R    | FL/R | DW    | DW    | DW    | DW    |
| OVERLAP 'A' CHANGE | G    | G    | G    | R    | R    | G    | G    | G    | G    | FL/R | DW    | DW    | WK    | WK    |
| PHASE 4 ALT 1      | R    | R    | R    | R    | R    | R    | R    | R    | R    | FL/R | DW    | WK    | WK    | DW    |
| PED CLEARANCE      | R    | R    | R    | R    | R    | R    | R    | R    | R    | FL/R | DW    | FL/DW | FL/DW | DW    |
| 4 ALT 1 CHANGE     | R    | R    | R    | R    | R    | R    | R    | R    | R    | FL/R | DW    | DW    | DW    | DW    |
| PHASE 4 ALT 2      | R    | R    | R    | R    | R    | G    | G    | G    | G    | FL/R | WK    | DW    | DW    | WK    |
| PED CLEARANCE      | R    | R    | R    | R    | R    | G    | G    | G    | G    | FL/R | FL/DW | DW    | DW    | FL/DW |
| 4 ALT 2 CHANGE     | R    | R    | R    | R    | R    | Y    | Y    | Y    | Y    | FL/R | DW    | DW    | DW    | DW    |
| FLASHING OPERATION | FL/Y | FL/Y | FL/Y | FL/Y | FL/Y | FL/R | FL/R | FL/R | FL/R | FL/R | DARK  | DARK  | DARK  | DARK  |

NOTE: SIGNAL HEAD #10 WILL OPERATE IN AN ALTERNATING FLASHING MODE AT ALL TIMES

EQUIPMENT LIST "B"

B. EQUIPMENT TO BE FURNISHED AND/OR INSTALLED BY THE CONTRACTOR

| ITEM NO. | QUANTITY | UNIT | DESCRIPTION   |
|----------|----------|------|---|
| 203030   | 2.5      | CY   | TEST PIT EXCAVATION   |
| 585621   | 300      | LF   | 12 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINE (CROSSWALK) |
| 585625   | 100      | LF   | 24 INCH WHITE PREFORMED THERMOPLASTIC PAVEMENT MARKING LINE (STOPLINE)  |
| 800000   | 8        | EA   | 8 INCH VEHICULAR TRAFFIC LED SIGNAL HEAD SECTION                        |
| 800000   | 4        | EA   | 16 INCH PEDESTRIAN LED SIGNAL HEAD SECTION - POLE MOUNT (COUNTDOWN)     |
| 800000   | 4        | EA   | AUDIBLE/TACTILE PEDESTRIAN PUSHBUTTON STATION                           |
| 800000   | 1        | EA   | 2-WIRE CENTRAL CONTROL UNIT (APS)                                       |
| 801004   | 10       | CY   | CONCRETE FOR SIGNAL FOUNDATION  |
| 802501   | 325      | LF   | NO. 6 AWG STRANDED BARE COPPER GROUND WIRE                              |
| 805135   | 425      | LF   | 3 INCH SCHEDULE 80 RIGID PVC CONDUIT-TRENCHED                           |
| 805140   | 175      | LF   | 4 INCH SCHEDULE 80 RIGID PVC CONDUIT-TRENCHED                           |
| 805145   | 60       | LF   | 2 INCH SCHEDULE 80 RIGID PVC CONDUIT-SLOTTED                            |
| 805150   | 250      | LF   | 3 INCH SCHEDULE 80 RIGID PVC CONDUIT-SLOTTED                            |
| 805155   | 200      | LF   | 4 INCH SCHEDULE 80 RIGID PVC CONDUIT-SLOTTED                            |
| 807202   | 1        | EA   | METERED SERVICE PEDESTAL  |
| 810010   | 50       | LF   | ELECTRICAL CABLE - 1-CONDUCTOR NO. 4 AWG-THHN/THWN                      |
| 810550   | 1        | EA   | MICROLOOP PROBE, 500 FOOT LEAD IN CABLE                                 |
| 810555   | 1        | EA   | MICROLOOP PROBE, 1000 FOOT LEAD IN CABLE                                |
| 811001   | 12       | EA   | INSTALL ELECTRICAL HANDHOLE   |
| 813015   | 12       | SF   | INSTALL OVERHEAD SIGN   |
| 816001   | 2        | EA   | VIDEO DETECTION CAMERA  |
| 816005   | 2        | EA   | CONTROL CABLE, 250 FOOT, VIDEO DETECTION CAMERA CONTROLLER              |
| 818004   | 3        | EA   | 10 FOOT BREAKAWAY PEDESTAL POLE   |
| 818010   | 1        | EA   | 14 FOOT BREAKAWAY PEDESTAL POLE   |
| 818021   | 1        | EA   | STEEL POLE WITH TWIN 50 FOOT MAST ARMS                                  |
| 821003   | 5        | EA   | BREAKAWAY BASE SUPPORT SYSTEM FOR SIGNAL STRUCTURE                      |
| 837001   | 8        | EA   | GROUND ROD - 3/4 INCH DIAMETER X 10 FOOT LENGTH                         |
| 860284   | 29       | EA   | 12 INCH VEHICULAR TRAFFIC LED SIGNAL HEAD SECTION                       |
| 861105   | 525      | LF   | ELECTRICAL CABLE - 2 CONDUCTOR (NO. 14 AWG)                             |
| 861107   | 850      | LF   | ELECTRICAL CABLE - 5 CONDUCTOR (NO. 14 AWG)                             |
| 861108   | 1100     | LF   | ELECTRICAL CABLE - 7 CONDUCTOR (NO. 14 AWG)                             |
| 871117   | 1        | EA   | INSTALL CONTROLLER AND CABINET - BASE MOUNT                             |
| 873001   | 1        | LS   | REMOVE AND DISPOSE OF EXISTING EQUIPMENT                                |

EQUIPMENT LIST "C"

C. EQUIPMENT TO BE REMOVED AND RETURNED TO SHA:

SHA FORCES SHALL REMOVE THE EXISTING CONTROLLER AND ALL AUXILIARY EQUIPMENT FROM THE CONTROLLER CABINET. THE CABINET AND ALL OTHER MATERIALS TO BE REMOVED BY THE CONTRACTOR SHALL BECOME THE PROPERTY OF THE CONTRACTOR.



STATE OF MARYLAND  
DEPARTMENT OF TRANSPORTATION  
STATE HIGHWAY ADMINISTRATION  
OFFICE OF TRAFFIC & SAFETY  
TRAFFIC ENGINEERING DESIGN DIVISION



US 220 FROM MD 53 TO  
0.41 MILES NORTH OF MD 636  
PHASE I (CRESAPTON)

GENERAL INFORMATION - US 220 @ MD 636

SCALE NOT TO SCALE DATE AUGUST 28, 2008 CONTRACT NO. AL8795184

DESIGNED BY BSH COUNTY ALLEGANY COUNTY

DRAWN BY CLY LOGMILE

CHECKED BY JEH T.I.M.S. NO. G971

F.A.P. NO. SEE TITLE SHEET T.O.D. NO.

T.S. NO. 1852 B GI SG-02 OF SG-04 SHEET NO. 97 OF 113